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UNCERTAINTY OF TECHNOLOGY USE IN REDESIGNING A TRADITIONAL UPPER
SECONDARY SCHOOL COURSE INTO AN ONLINE FORMAT: AN
AUTOETHNOGRAPHIC STUDY

MA thesis

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Abstract

The aim of this thesis is to give an insight into the experience of embracing uncertainties by a language teacher who redesigned a contact course into an online format. Both for a group of 13 upper-secondary school students and the author of the thesis it was their first experience of online learning and teaching. The author addressed the issue of ambiguous nature of teaching and teacher's traditional and technology use uncertainties. Autoethnography was used as a research method. The author kept a diary which assisted in keeping track of experience and reflections. Framing, categorization, documentation and resolving uncertainties was an integral part of this practice. The author of the thesis considered an active response to uncertainties of teaching as an integral part of teacher's development and a learning opportunity.

Keywords: uncertainty, online teaching, technology use

Table of contents

Abstract	2
Introduction: How it all began	4
Theoretical overview	6
Uncertainty	6
The ambiguous nature of teaching	8
Uncertainty and teacher education	10
Uncertainty of technology use	11
Approaching uncertainty through reflection	13
Methodology	15
Before the online course started	15
Autoethnography	17
My autoethnographic study: Uncertainty of technology use in redesigning a traditional upper secondary school course into an online format	18
Uncertainty related to the commencement of the course	18
Uncertainty linked to communication	19
Uncertainty centered on the learning materials	22
Uncertainty of encouraging learners' participation in online discussion	23
Uncertainty of the new	24
Uncertainty of delivering online feedback	26
Illuminating the experience	27
Conclusion: Taking stock	28
List of references	32
Acknowledgements	36
Author's declaration	37

Introduction: How it all began

The lack of free learning space is the point at issue at my school. Founded in the 19th century, the historic building of the school has never been designed to educate students of both primary and secondary levels. The school has been successfully adopting Estonian language immersion programme for 20 years. This autumn the school is intending to open three first classes instead of regular two. Such changing growing dynamics in the number of the students may prefigure the tendency of different forms of learning in my school, for example, blended learning or online learning.

The facade of a historic building is rarely changed, it is preserved with attention to details. The interior of the building like my school has been adjusted to the new realities. Today, some shifts in education, whether they are connected with learning space or not, are dramatic, some are slight. Teaching in a traditional way a compulsory British History course, I have not contemplated progressing with it in a different environment and changing its status to an online optional course.

During the previous academic year I was considering ways of advancing the traditional model. Due to a necessity and basing my decision on intuition, I started to incline towards the idea of reviving the course by shifting it to online format. Adjusting to new realities at the beginning of every academic year, late afternoon time was always the only time the course could get into the students' hectic timetable. For upper secondary school students it portended an eighth or ninth lesson in a row. Managing such a busy timetable can be perceived by students as a daunting burden and lead to overwhelming tiredness by 3 or 4 pm. Students themselves tend to explore alternative ways of learning, seeking for informal or online learning, taking part both in Estonian and international projects or studying some time abroad.

One day, considering all the above-mentioned, I suggested customizing the course by evolving it in the online environment. The administration supported the idea and put their absolute trust in me by granting as much flexibility as it was needed. Having launched the course, I became aware of this intrinsic value to have an opportunity of pursuing the frontiers of a new land without any pressure. Ertmer and Ottenbreit-Leftwich (2010), Comas-Quinn (2016)

emphasized the importance of affording teachers to delve into new changes and experiences, considering them as inherent layers of teaching practice. At the same time teachers should not be left alone in their journey of any of the avenues of teaching exploration.

Being a keen online learner myself, I could foresee some of the visible benefits of online learning including the lack of restriction on time, place and pace of learning. However, I did not envisage to encounter uncertainty, which would first make me step back. I remember I was completely lost at one point being sensible of the fact that it was not easy for me to handle uncertainty connected with designing and implementing the online course. My previous teaching experience could not be simply shuffled like a pack of playing cards before a new game and transferred to an online environment. It was necessary to establish new online classroom routines, habits, communication patterns, procedures, policies, ways of providing feedback and explore digital skills.

Although there are growing appeals for online formats in education, numerous themes are not straightforward since the ambiguous nature of teaching, the way we view learning or uncertainty we are perceiving. These lead to myriad not determined aspects such as the form of communication, learning materials, assessment, addressing uncertainty, interpreting situations. All these aspects remain an open riddle in online education, as there are no universally applicable solutions. This research is not aimed at solving aforementioned pieces of online puzzles.

The purpose of the thesis is to give an insight by deploying autoethnography into the experience of embracing uncertainties by a teacher who reinvented a contact course into an online course using Google Classroom (GC). Telling a story by reflecting about it is one of the intrinsic and pragmatic elements of this practice. It can be assumed that the lack of past online teaching experience was the rationale for uncertainty. I might have viewed uncertainties connected with online areas of teaching, to some degree, through the lens of my experience in face-to-face teaching. What was the role played by this online teaching experience in making me reflect on the countless questions about teaching and learning?

The thesis consists of four chapters. ‘Theoretical overview’ presents the possible sources and the meaning of uncertainty related to traditional teaching and technology use and then focuses on reflection as a way of communicating with uncertainty. ‘Methodology’ chapter describes the

applied methodology and gives details about the course before it was carried to online format. In ‘My Autoethnographic study’ I reflect about my online teaching experience, frame uncertainties of technology use, drawing parallels between my practice of traditional and online teaching of the course for the purpose of refining teaching skills and getting a deeper understanding of both teaching and learning. The thesis ends with ‘Conclusion: Taking stock’ which features the results.

Theoretical overview

Uncertainty

The aims of this chapter are to describe the concept of uncertainty, an ambiguous nature of teaching and the state of uncertainty in teachers education, identify the beginnings and the role of uncertainty in traditional and online context and delve into reflection.

Uncertainty is present in every single part of our lives, including the craft of teaching, Nowotny, (2016) observes that mankind has always actively sought ways to impact its existing time and time to come. Endeavouring to achieve certainty has been an inherent element of mankind. Today, with easy access to information and lack of understanding about future jobs, with learners who are called both creators and consumers, with teachers who have to continually invent and reinvent, teaching has been blossoming with inconsistency and uncertainty.

It is interesting to note what Barnett (2007) wrote:

A pedagogy for uncertain times has itself to be uncertain. It is open, it is daring, it is risky, it is, itself, unpredictable. No matter how professional the teacher is, no matter how much she has thrown herself into ‘the scholarship of teaching’, her teaching, if it is truly teaching for an uncertain age, will itself embody uncertainty (p. 137).

The questions that then naturally arise are what uncertainty is, and what it involves in teaching. As stated in Cambridge Dictionary uncertainty is “a situation in which something is not known, or something that is not known or certain”. The idea of uncertainty in teaching has been studied by Floden and Buchmann (1993), Floden and Clark (1988), Helsing (2007, 2015), Labaree (2000), Lange and Burroughs-Lange (1994), Munthe (2001). Every day this ‘something

not known or certain' appears plenty of times on the teacher's scene. How to create relationships with a new group of learners? What to teach to this group of weird adolescents or that group of lively young learners? Should teachers rely on their experience, trust intuition and experiment?

Viewing uncertainty, more details might be distinguished connected with its tones of perception or its forms. As described by Campbell, illustrating the perception of uncertainty, "it is difficult to avoid the language of the "certainty versus uncertainty" dualism" (2007, p. 2). Writing about certainty, Floden and Clark (1988) assumed that more certainty does not align with more advantage. Floden and Buchmann put forward "that instead of 'uncertainty', we spoke of 'openness', 'awareness of possibilities', 'fluidity' or 'freedom from rigidity' (1993, p. 377). Therefore, the twining thread of uncertainty in teaching might be re-evaluated and thereafter re-conceptualized.

The forms of uncertainty vary. In 1988 Floden and Clark exploring uncertainty in teaching, distinguished one uncertainty from the other. The researchers identified uncertainty of opting for the assessment tool, uncertainty about the way of augmenting students' learning, uncertainty of teacher's role, uncertainty about making a decision of what content to choose to teach. Today, all aforementioned kinds of uncertainty might still be relevant in traditional face-to-face teaching. Presumably by virtue of the lack of necessity, uncertainty in connection with technology use was not addressed in 1988. One more example of a form of uncertainty is dilemma (Helsing, 2007). Helsing conceptualized dilemma as a situation with clashing variables, illustrating it as a need to adjust teaching to suit the needs of an individual and a group or teacher's inconsistency between being the one who supports and assesses learning. In resolving dilemmas there are no accurate choices.

The degree of accuracy in resolving uncertainty begins with its articulation. Schön (1983) observed that if noticing and dealing with a problem is part of professional experience, then "problem setting is a recognized professional activity" (p. 18). Considering this approach, it can be assumed that concern about formulating teacher's uncertainties is rational. Schön (1983) continued that "When we set the problem, . . . we set boundaries of our attention to it, . . . and in what directions the situation needs to be changed" (p. 40). Mindful of the value of enlightening teachers in teacher training about their ability to understand the sources of uncertainty, Floden

and Clark (1988) noticed that different sources of uncertainty will call for distinct steps to be taken. The researchers illustrated it with the following example. If a novel teacher's uncertainty is due to incomplete knowledge or necessary skills not mastered yet, then the teacher may apprehend ways to regulate order in the classroom. This source of uncertainty will be lessened with more practice and experience.

According to Helsing (2015), there are at least two possible reactions to uncertainty. She outlined that countering with uncertainty, teachers may “avoid or deny” (p. 35) it. Alternatively, in case of approving uncertainty as an element of teaching experience, teachers accept that there is an uncertain situation which outcome is difficult to accurately predict. Reacting positively to uncertainty by accepting it, Helsing (2007) noticed that teachers rivet attention and efforts on reviewing their assumptions, constructing new meaningful experiences. Helsing (2007, p. 1323) stressed that “only through the recognition and acceptance of uncertainty” reflective practice becomes achievable and it involves the understanding of the prismatic steps to be taken. One of these steps, acknowledging the problem is in line with Schön's suggestion (1983) about the value of the problem statement. Perceiving the relevance of conceptualizing uncertainty, considering its different forms and sources, we might be curious to know more details about the way uncertainty interlaces with teaching.

The ambiguous nature of teaching

Teaching is an overture of uncertainty. Describing teacher education “as an unfinished project, more fragile than we ever imagined” (p. 12), Britzman (2006) also asked a question “what is it to choose uncertainty” (p. 4). Helsing (2007) illustrated the teacher's profession as “complex” (p. 1318), “open-ended and diffuse” (p. 1322). Teachers accept an eclectic mix of roles in their practice. These roles may have blurring boundaries, which will intertwine and add a touch of ambiguity. Selwyn (2011) reflected about whether “teaching should be approached as a ‘science’ or as an ‘art’ (p. 117), but he did not intend to give any explicit directions.

It is also important to highlight that teachers may approach teaching practice in different ways, depending on their perception of learning, whether it is a process or a product. Describing modern parenting, Gopnik (2016) made a distinction between a ‘gardener’ and a ‘carpenter’, a

division that is possible to apply to teaching. Gardeners focus on growth or process and are heartening to see when “the garden escapes . . . control” (p. 22), embracing uncertainty, whereas carpenters’ success depends on rigor and product. In essence, there are no direct answers in teaching as the nature of teaching is ambiguous itself.

As to further the perception of the complexity of teaching, Labaree (2000) identified some features of this practice, one of which is uncertainty, which is “chronic” (2000, p. 231). He spelled out the beginnings of this uncertainty, which are related to its main floating element, a human being. Firstly, teaching is connected with erratic components of human intention and emotion. Helsing (2007), Floden and Clark (1988) supported Labaree’s first beginning of uncertainty, linked to instability of human emotions. Helsing (2007) acknowledged emotional and behavioural components of human interaction while teaching that have to be anticipated and clarified. The ambiguous character of teaching craft, which is connected with the erratic nature of individuals involved, leads to the idea described by Floden and Clark that “uncertainties are inevitable” (1988, p. 3).

Secondly, noticed Labaree (2000) the intricateness of teaching is impossible to reduce. Barnett continued “Since the world is uncertain . . . there can be no chance of finding a single human quality or disposition that is going to be adequate to such a world” (2007, p. 136). The variety of human nature sets the tone for variety and thus for uncertainty in teaching. In other words, as Barnett advanced asking rhetorically whether there exist “any limits to pedagogical diversity in an age of uncertainty” (2007, p. 136).

Thirdly, it is impossible to determine competently teachers’ influence on students. Advancing this third beginning of uncertainty, Floden and Clark (1988) recommended teaching being regularly researched. Even so, Floden and Clark continued that “research has not permitted, and probably never will permit, accurate prediction of what *this* child will learn from *this* lesson taught in *this* way by this teacher in *this* school” (1988, p. 6). Moreover, research takes time and the results may not give clear answers or immediate and universal solutions.

Teaching is exposed to any winds. It is like a windswept lighthouse. In line with Lindqvist and Nordänger (2006) teacher’s work can be viewed from any vantage point as all features of it “are becoming more visible and accessible” (2006, p. 634). The studies conducted by Lindqvist

and Nordänger (2006) revealed the constant availability of a teacher during the working hours, including break or lunch time or a short walk from the second to the first floor. There is a combination of uncertainty, uneasiness and a feeling of self-consciousness in this availability.

Accepting a deeply perplexing nature of teaching, uncertainty unfolds into its innate quality, making the following description of professional uncertainty particularly significant. Lange and Burroughs-Lange (1994) conducted a research aimed to study teacher's professional knowledge, recognizing "professional uncertainty as a legitimate function of their [teacher's] role and not as a reflection of their inadequacies" (p. 617). Describing uncertainty as "a legitimate function" we perceive its presence in teaching as justifiable.

Collaboration is one of the acknowledged ways of accepting uncertainty and evolving reflective development. Rodgers (2002) stressed three aspects of collaborative reflection: confirmation of the significance of experience, the possibility of reaching new different context and assistance. By contrast Helsing (2007) recommended thoughtful analysis about the forms of practice and support that collaboration will unfold. On the one hand, talking to one's colleagues about uncertainty is a constructive experience. Schuck, Aubusson, Burden, and Brindley (2018, p. 260) assumed that "Uncertainty allows us to stop and reflect, to challenge and debate". On the other hand, Floden and Clark (1988) doubted whether teachers are trained or willing to share their uncertainty. Such openness may depend on a number of factors, namely personal and cultural characteristics, institutional climate or expressed readiness that is based on the common practice of discussing uncertainty in teacher education programs.

Uncertainty and teacher education

Aforementioned details may be considered as a promising aspect of grasping the significance of noticing uncertainty in teacher education. Nonetheless, when training teachers uncertainty is rarely discussed or sometimes even mentioned in the classroom. It is something that ceases to exist. According to Gordon (2006), teacher candidates are directed to maintain their students' learning process with explicitness. Moreover, Helsing (2000) clarified that allowing uncertainty in the classroom counters with the common teacher training which presumes that understanding is rigid and not uncertain.

Conversely, Costache, Becker, Staub, and Mainhard (2019) considered uncertainty as one of the components of teacher training. In the study conducted by this group of researchers they recommended straightforwardly giving attention to uncertainty during pre-lesson conferences for student teachers by putting a question “Do you have any uncertainties?” (2019, p. 12). This question as an appetizer in a six-course meal will set the tone for a conversation between a practitioner and a student teacher to introduce any ambiguities. Costache et.al presumed that such dialogue will probably be started by a more trained student. Thus it confirms the concept of uncertainty not always as a scarcity of learning but rather as “a more adequate awareness of one’s limits and options” (2019, p. 12). Furthermore, Schuck et. al (2018) supposed that searching for the ‘right answer’ discourages us to conceive. Schuck et. al (2018) continued that the presence of doubt implies the awareness of the intricate essence of teaching, an array of methods to apply, each with its benefits and drawbacks and the absence of unreasonable expectations. Considering the appeal of technology in teaching today, there can be a certain expectation and uncertainty present in technology use.

Uncertainty of technology use

The uncertainty is presumed to expand when technology is involved. Somewhere along the teaching journey exploring and engaging in the abundance of technologies present today, it is easy both to take a chance and to be lost. Ertmer and Ottenbreit-Leftwich (2010) noticed the impossibility of knowing utterly about technological tools, “as they are always in a state of flux” (p. 8).

Educational technology should be in alliance with research and practice to achieve the objective of augmenting the quality of teaching and learning. Nonetheless, some of the components of this union might be missing or not progressing in unison with each other. In the opinion of Howard and Mozejko (2015), teacher’s uncertainty connected with embracing technology belongs to the insufficient knowledge about which technologies contribute to students’ learning. It might be the result of the lack of experience, observation or the absence of established collaboration. As described by Ertmer and Ottenbreit-Leftwich (2010), teachers call for to be provided with guidance about perceiving the practices of applying technology in ways valuable for learners.

Howard (2013) noticed that along with that teachers feel uncomfortable about the inability to regulate any technical dilemmas they may encounter. It is regarded by some teachers that taking time during the lesson in order to handle a technical problem prompts learners' misbehaviour. Howard and Mozejko (2015) considered the value of drawing attention to these moments. Ertmer and Ottenbreit-Leftwich (2010) emphasized the importance of school support or "context" (p. 12) in the use of technology by teachers.

Teachers may likewise have unrealistic expectations of entrusting the technological tools the arrangement for beneficial learning practices. Fisher (2006) noticed that teachers, not technology are preferably those who undertake the journey of change. According to Selwyn, "educational technologies do not *always* change things for the better" (2011, p. 9). The possibility of unanticipated outcomes should not be eliminated. Therefore, educational technologies do not necessarily add value, but as Selwyn (2011) noticed may narrow options.

Uncertainty flourishes into raising good questions when technology has been integrated with or into learning, such as what our goals are, what considerable changes the process of adapting of technology requires. As Kirkwood and Price (2014) observed, asking about the advantage that technology adds to learning practice is one of the necessary questions to think about. Based on the studies conducted by Kirkwood and Price (2014), the interventions with technology were arranged into three categories: "replicating or supplementing existing teaching practices" (p. 10) and "transforming the learning experiences"(p. 11). Thus, the researchers noticed that the aim of the first two interventions was "doing things better", whereas the third one was "doing better things" (as cited in Reilly, 2005). However, a still unsolved question is what the notion of "doing better things" is. It is not as straightforward or consistent as it may look on the surface. What is a completely transformative experience? Does transformative imply formative? Is it an appropriate occasion to ask what should be better: method, technology, teacher, assignment, environment? However, Fisher (2006) cautioned against the possibility of being affected by the language we use in connection with technology, suggesting that "It creates a climate of expectation" (p. 301). Furthermore, Fisher (2006, p. 301) pointed out "not every change is a transformation" (as cited in Davydov, 1999).

Teachers' attitude to uncertainty and thus to change might be one of the constraints to include a new technological tool or method to their teaching practice. As Baylor and Ritchie (2002) suggested in their studies, a teacher's "openness to change" (p. 397) is a decisive element of experimenting with technology. Knowledge, experience, teamwork, and a clear perspective about the use of technology in the classroom decrease the level of uncertainty, whereas teacher's openness, according to Baylor and Ritchie (2002) is such an individual feature which is complicated to give a different shape. Reflection is one of the guides that might mold the meaning of uncertainty and a teacher's attitude to it.

Approaching uncertainty through reflection

Teaching requires reflective practice. Schön (1983) wrote that practitioners are entangled in "conflicts of values" (p. 17). Such encounters or dilemmas, as Helsing (2007) specified forms of uncertainty, are commonplace in teaching practice. Therefore, the development of reflection is as necessary as any other skills that teachers acquire. Describing attitudes which assist in leading the way to reflective thinking, Dewey (1933) named whole-heartedness, open-mindedness and responsibility. Besides everything aforementioned, teachers need to take time to become self-aware.

Johns (2013) illustrated reflection as "being mindful of self, either within or after experience" (p. 2), portraying a practitioner who is settling a dispute between an imaginary and desired perspective and a current situation. According to Johns (2013), through the medium of writing, reflecting about one's experience, a practitioner becomes conscious of "patterns of thinking, feeling and responding to situations" (p. 3). Bolton (2010) defined reflection as "an in-depth consideration of events or situations" (p. xix). Both Johns and Bolton characterized reflection as an elaborating process.

The landscape of reflection is dotted with various possibilities. Bolton (2010) listed a number of reflective routes, such as photography, letter writing, story telling, cartoons, portfolios, personal development plans, writing journals, diaries, logs. Such a variety of reflective practices makes it complicated to make a decision about the way to reflect. The choice may be based on a

professional's suggestion or be personal and intuitive, supported by the teacher's own experience and self-understanding.

We may think that the concepts of a reflective practitioner, reflective thinking and reflection does not need to be refined, as it is clear. Nonetheless, Rodgers (2002) exploring the origin of reflection in the work of John Dewey, described that reflection is not a short romance taking place from time to time. This process is “iterative, forward-moving spiral . . . rigorous and systematic” (p. 863). Therefore, it is not a final point of destination, but it is a journey itself. Sadly, stream of consciousness as Rodgers (2002) reckoned is the only kind of thinking that teachers make time for. So, is any form of introspection, namely writing a diary, erratic observing or pondering about one’s teaching experience one of the distinguishing marks of a reflective practitioner? According to John Dewey himself (1933, p. 3), “reflective thinking: the kind of thinking that consists in turning a subject over in mind and giving it serious and consecutive consideration.” Considering such words as ‘serious’ and ‘consecutive’ as fundamental in this description, becoming a reflective practitioner is not a fleeting moment.

Embracing uncertainty, we may attract mindful experiences in our classrooms. Referring to Robert Sternber’s work, Langer & Moldoveanu (2000) pointed that mindfulness is not easy to grasp with the help of conventional tools. Bolton (2010) described our time as a period with “little reflective . . . or simply mentally absent space allowed” (p. 15), noted that mindfulness is beneficial for the advancement of reflective practice. Mindfulness is a reflection's partner.

Reflection is far from smooth sailing in a quiet sea. Quite the contrary, it may contribute to more ambiguity and disturbance. Bolton (2010) described the process of reflective practice as “inconvenient, messy” (p. 187). Referring to his own experience of a reflective practitioner, Attard (2008) noted about the possibility of having illusions connected with reflection. Reflective teacher will not get immediate answers to his questions by means of introspection. Along with that “there is no ultimate need to get answers quickly. What is of most importance is the process of inquiry” (2008, p. 315). Like a patch of land has to be cultivated for the crop to grow, so does inquiry. Gabella (2009) believed that uncertainty acts as a catalyst for inquiry, emphasising uncertainty as a requirement for inquiry to evolve.

The literature review shows that the nature of teaching is complex and ambiguous and confronting uncertainties is unavoidable. Previous studies have focused on uncertainties which might be present in traditional face-to-face context. A number of questions regarding the uncertainties connected with technology use which emerge in teaching remain to be addressed. Therefore in my autoethnographic study I will focus on my uncertainties of technology use. What are they? How will they differ from traditional classroom uncertainties? To what extent framing and reflection of uncertainties might influence a teacher's experience?

Methodology

Before the online course started

As it was indicated in the introduction, the goal of this research is to illuminate unknown for me experience of online course teaching and responding to uncertainties.

British History course has been evolving since its very beginning. At first, the idea of creating a course was suggested by the administration of the school. It was considered as one of the steps to support learners in their journey in achieving B2/C1 level of English language by the end of gymnasium. According to the classification of Common European Framework of Foreign Languages, these are upper-intermediate and advanced references of foreign language level.

During the first two years of teaching it was a compulsory course for all students of the 10th form of my school. Within the space of those two academic years, I had in total four groups of students with 12-15 students in a group. The students had 35 contact lessons in the span of an academic year, one lesson per week. Students were graded according to the school standardised 5-point scale. The language of instructions was English.

Initially, contemplating the future syllabus of the course for some time, I decided to ask my colleague, a history teacher, to collaborate on it. We discussed the 'backbone' of the course. The syllabus followed the timeline of history of Britain, covering such periods as Celts, Romans, Anglo-Saxons, Vikings, Normans, Middle Ages and Tudors. Following the chronological order of events, with students we made connections within different periods and personalities, 'cooked'

a Celtic stew, endeavoured to walk in the shoes of Romans teenagers imagining and comparing their lives with nowadays and had compassion on Anne Boleyn.

Every academic year the syllabus was revised by me, depending on the interests of the learners and their level of English language. From the very beginning of the course, I appreciated the flexibility of the syllabus. It has been possible to make any time any changes in it. For example, once a group of learners I was teaching, found the Vikings period fascinating. We spent more time exploring this period than it had been initially planned and visited an exhibition dedicated to the Vikings in Estonian Maritime Museum. Once, we spent a fair amount of time with another group of students delving into the details of medieval medicine. By dint of that knowledge I was not underwhelmed by the medieval period any more.

By the third year of the course, together with the administration of the school we settled to change the course to a pass/fail one, so grading disappeared. I embraced that decision.

After three years, the course transformed into an online optional course both for students of the 10th and 11th forms. The group was composed of 13 students (5 male and 8 female), 5 students from the 10th form and 8 students from the 11th form. Such a concept as 'the number of the lessons' was withdrawn, the types of the assignments that the learners got online proved to be more relevant. English remained the language of instructions. For the most part of the course the students practised reading, listening and writing skills being involved in the content.

Google Classroom (GC) was used as the learning environment space. Although by the beginning of August, it was still unclear for me whether it should be an online or blended course. If the course is delivered online, what LMS should I use with my students? If it is a blended course, what is the combination of traditional face-to-face classroom practice and educational technology?

In the course of August session in Tartu, one of my colleagues from our Master's program kindly shared his experience of using GC for a number of different courses. At that point, before launching my course, some of the benefits of GC became evident. I had been looking for a free, user-friendly LMS which has unlimited storage, multi-platform and operating systems. The decision about applying GC for the course was made. The decision about proceeding with the online course, not a blended one, was made later when the course had already been flowing for

some time. I am going to talk about the design and implementation of GC in the ‘My Autoethnographic study’ part.

Autoethnography

Qualitative inquiry was relevant to this research. Merriam (2009) noticed the interest in perceiving and relating to what is happening with people in their lives as a focus of a researcher.

The method selected for the research is autoethnography. Starr (2010) identified autoethnography as a beneficial medium for educators pivoting in intricacy and variety of teaching. Belbase, Luitel, and Taylor (2008) stated that on the approach road to understanding one’s teaching practice, autoethnography works as a “lens” (p. 94). This method was employed in order to reflect on my practice, to help identify the sources of my own uncertainty connected with technology use while conducting an online course with upper secondary school students for the first time.

Autoethnography invites its writers to “rethink and revise” (Ellis and Adams, 2014, p. 28). Starr (2010) described this involvement as “transformative” (p. 2). My experience of online teaching needs consideration and new decisions based on it for a possible new group of learners to teach next academic year.

Keeping a diary in the form of handwritten entries helped me to leave prints I could refer to pondering experience. Albeit Spigelman’s (2001) observation that “personal writing remains untrustworthy or “sentimental” (p. 63), writing has always been interwoven with my life, it felt natural to keep a diary. I consider writing as listening to oneself, therefore, a diary for the purpose of research is a favourable tool of reflection. Autoethnography has an introspective perspective or as Ellis and Adams (2014) specified the process of writing will make possible for the author to untangle uncertainty. Screenshots, emails, whatsapp communication were also handy quick tools which helped to keep record of events, ideas and inspirational concepts.

As mentioned in the literature review, one of the ambiguities of teaching both online and directly is connected with the impossibility to predict human nature. Likewise, Starr (2010) acknowledged that learning “is not so analytical or linear” (p. 2), answers may not always be straightforward, thus making space for details, clarity, depth and therefore for autoethnography.

My autoethnographic study: Uncertainty of technology use in redesigning a traditional upper secondary school course into an online format

Some things are hard to write about. After something happens to you, you go to write it down, and either you over dramatize it, or underplay it, exaggerate the wrong parts or ignore the important ones. At any rate, you never write it quite the way you want to.

Sylvia Plath

The aim of this part of the autoethnographic study is to formulate the experience of delivering course in online format for the first time, frame teacher's uncertainties, discerning whether they are features of traditional teaching context or educational technology. Teaching online I encountered different forms of uncertainty such as uncertainty connected with the beginning of the course, uncertainty accompanying communication, uncertainty related to materials, uncertainty of advancing learners' online participation, uncertainty of dealing with the new guides, habits and routines and uncertainty of providing feedback.

I wonder when the feeling of uncertainty appeared. Has it always been there as an intrinsic part for the outcome of the online course and myself as a learner and a teacher? Has it nurtured me to be mindful, open and reflective? Johns (2013) wrote that pinpointing the starting point and the end of any experience is complicated to achieve, asking whether foreseeing one's experience can be interpreted as experience. Therefore, the reflection on one's experience may not have a certain threshold marked as the beginning of both the experience and reflection.

Uncertainty related to the commencement of the course

In early September I was looking at the landing page of GC and thinking about the 'shining' way to commence teaching. Having taught a number of first lessons in traditional learning to upper secondary school students, perceiving the significance of setting the tone of the learning and communication, I did not know how to start. I was thinking about the way of welcoming students

into the course and presenting the overview and the aims of the course. I appreciated my learners' adventurous decision to join the course being aware of the fact that I was neither a history or an accomplished online teacher. Therefore, I felt that my responsibilities had increased.

The more I contemplated teaching the course online, less certain I was about *what*, *how* and *why* to teach. Those thoughts differed from the anticipation I have had before teaching a new group of learners or a new course in a traditional way, although I have always had uncertainty. However, it was a different experience of making decisions, exploring, taking risks and learning myself.

Returning to the early September, I imagined myself being a first time online student navigating in GC. Suggesting learners a few optional assignments aimed at endeavouring to explore the new learning space, we launched the course. Looking at my diary entries, I notice that the first months were the most critical, uncertain and fickle for me. As soon as new routines, asynchronous communication, selection and creation of materials and way of delivering and receiving feedback were established, it facilitated the feeling of the flow in the course. Henriksen and Mishra (2018) in conversation with Beghetto put forward his opinion, writing “You have to be able to step into uncertainty and try to resolve it in a new and different way” (p. 544). Although Beghetto connected the importance of uncertainty with creativity, the idea of becoming involved in uncertainty resonates with my experience.

It was surprising to discover that during the online course none of the students asked for any help connected with the implementation of GC. For all of them it was their first online learning practice in such format. The students belong to “digital natives”, the term coined by M. Prensky (2001). It might have been natural for them to experiment and to instinctively find solutions to any technological puzzles. Later, giving feedback, some of the students confirmed that they experienced simple problems which they had solved themselves.

Uncertainty linked to communication

Communication is at the heart of any learning. From the outset of the course, one of the main sources of uncertainty for me was the lack of face-to-face communication with my students. I remember I was looking at the list of students' names and their tiny profile pictures in GC,

depicting a dog or a mystical feature and realizing that a new practice of understanding learners' interests, language level, motivation and communication had to be applied. I tend to believe that we are both architects who communicate and thus construct learning which is significant for learners by making connections with their prior knowledge, life experience, interests, by involving learners emotionally when we discuss things that matter for them. Prinski, Hecht & Harackiewicz (2018) stated that making content personal for learners, for example by means of affording an opportunity to decide themselves what presented materials to choose, might be the ramification of causing interest.

Despite different studies, the way of establishing communication with learners continues to be debated among the researchers. Labaree (2000) noticed that creating relationships with students, settling with them emotionally, teachers do not have such a reference book which demonstrates how to establish affectionate relationships with a particular group of students. Ultimately, every learning situation with all its components is unique and so is uncertainty. Nowotny (2016) believed that by contextualizing uncertainty, we expose inconsistency.

In order to initiate meeting the uncertainty of not knowing my students at the beginning of the course I offered students to introduce themselves online and single out one period of British history they were particularly interested in for any reason. By reason of not clear guidelines or the novelty of the use of GC for learners, some of them posted their answers as private comments rather than comments which were available to read for all the learners of the online course. Regulating the situation, I asked learners to repost their comments. In the sequel I ascertained that my instructions were transparent and detailed. I did not always succeed in it or some students preferred to confirm once again that the assignment was unambiguous for them. Nonetheless, the clarity of the instructions in online learning appeared to be critical from the first weeks. At the same time in traditional learning I began to focus more on the quality of my verbal instructions and on the questions the students asked. I noticed that few students had a brilliant habit of immediately clarifying the guidelines for themselves in case of new types of assignments.

In a few weeks, looking at the number of the students on the GC landing page, I realised that two students had quit the course. Such a situation would be impossible to imagine in traditional face-to-face teaching. First I had to clarify who the students were, then why they took that

decision and what steps to rectify the situation would be. For the reason that I had four new groups of students in traditional learning, I did not remember all the new students' names at that moment. The students' names disappeared from the list of the students in GC. I used their comments to the assignments as 'traces' to restore the contact with the learners and meet shortly afterwards.

When I first met the two students, who occurred to be two nice and affable girls, they began our conversation with apologies. It was uncomfortable for me because their decision to quit the course was acceptable like their personal choice. We agreed that it would have been better to notify beforehand about their intentions either by writing an email or appointing a meeting. I wanted to know the reasons and depending on the reasons reach an agreement about the steps to take. The students' reasons for quitting the course swirled around two clarifications, their engagement in gymnasium compulsory courses and the level of the language used for the course assignments that they considered not challenging enough. I suggested both students create their own assignments for their peers, which would be beneficial for the girls themselves due to the full involvement and for me to understand the level of the language they were aspiring to practise. Our collaboration in creating the assignments lasted for about three weeks. We discussed the details via emails and meeting by chance at school during the break time. In the long run the girls did not quit the course. I had an intuitive belief right after our first meeting that they would not do it.

Ultimately, technology served as a useful medium of communication. In addition to feedback, emails developed into one more communication channel during the course. Posting any assignment, I felt it was important to add a simple phrase 'Please let me know if you need help' which was equivalent to the question in traditional learning 'Do you have any questions?'. Immediate connection with learners via email played as a troubleshooter. Students used emails to clarify the guidelines for a new type of assignment, for example, a pair work or creating their own materials for the course. However, emails were not effective in regulating all situations. One of the participants of the course, who joined the course after a month's time the course had already been launched, seemed like a student who was interested in the subject. Unfortunately, the student missed the deadlines of the submission of the assignments or ignored them after a

while. It was impossible to clarify the situation with the help of emails, only meeting the student tackled the problem.

Uncertainty centered on the learning materials

The feeling of unease about creation and careful selection of learning materials was almost never-ending. For the purpose of both introducing learners with the periods of British history and unveiling different features of GC that will be used during the course while applying the assignments, I made a quiz assignment created in Google Forms. The results of the quiz puzzled me. Notwithstanding the absence of grading in the course, all students' answers were absolutely correct. It was a multiple choice quiz based on factual knowledge about the history of Britain that I used to give to the students at the end of the traditional face-to-face course. It can be presumed that the students knew or guessed some of the questions or simply googled the answers. What confused me was both the understanding that in spite of the limitless Internet sources, the selection process of the materials for the course would not be smooth, and the feeling of uncertainty about choosing materials when such a variety is accessible. The results of the quiz gave assurance to my insight feeling that exploring history was not only about dates, the chronological order of events or of the reigning monarchs that could be quickly googled and forgotten.

Creating materials for the course was both a breakthrough for me and one of the uncertain elements of online teaching. I updated some of the materials that I used for the course delivered in traditional format, but these were for the most part PDF files or presentations. The feeling of necessity of creating my own videos appeared later in the course. Besides recording and editing skills, making videos involves a mixture of components, such as making decisions about the concept and the length of the educational video, the software, the tool, the speed of the narration, whether a narrator should be behind or in front of the camera, how detailed a script should be, not eliminating some courage and fair amount of time. None of these elements were predetermined in the process of making the video.

My idea was to turn to an easy tool for a beginner and make short videos as an additional feature of asynchronous communication in the course. Crane (2016) emphasized that today

digital content is one of the salient units of getting information, “making content creation in demand for the learning environment” (p. 54). I decided to start with a ‘transition’ video which performed the function of the bridge between two periods of history. Making such ‘transitional’ video was less time-consuming than creating a ‘content’ video which presented facts, for example, about the Anglo-Saxons period. Soon after practising making videos myself, I suggested this alternative tool for the students who were interested in cooperative creation of the materials for the course. Reflecting about this practice, it is a good feeling to note that experience of making videos which at first existed side-by-side with a feeling of uncertainty transformed into creative initiative and collaboration with my students. Giving their feedback for the course, one of the students acknowledged *‘I tried to do a video of my own. I think it was a great experience’*.

Like for traditional British History course the selection of the materials turned out to be primarily an intuitive process. Reading material, for example, articles from a history magazine, online resources or chapters from books giving detailed descriptions, or listening material, such as youtube videos or podcasts were main informational resources used. As a way to interest learners, besides matching the criteria of the appropriate level of language or presenting trustworthy facts, it was also preferable to introduce the material that was relevant to the learners and considered their interests. Selwyn (2011) noted that technologies “are perhaps more commonly used as an ‘information tool’ than as a ‘learning tool’ (p. 80). I believe that engaging learners into discussion of comparing and contrasting past and present events, asking their opinions, imagining living in the periods of history discussed and supporting your point of view with factual knowledge, technology has a possibility to evolve into both a ‘learning’ and an ‘information’ tool.

Uncertainty of encouraging learners participation in online discussion

At first, it was unclear for me in what way to animate learners’ discussion. Monitoring learners’ comments, I noticed that they answered the questions suggested by me, but none of them initiated commenting on the peers’ answers or offered a new discussion thread related to the topic. Therefore, it could be assumed that they might not read each other’s answers. At a certain

point of a random conversation with a colleague, also a student from the Master's programme, who had experience of operating GC for teaching, the necessity of clear instructions for learners to comment on their peers' answers was mentioned. Again, the learners were given straightforward guidelines that depending on the assignment they were expected to comment on one or two or more peers' answers. I also asked them to make sure they use the person's email in the comments, then the person gets a notification about the comment, if they had not changed the original settings. It was a fulfilling feeling to observe learners' contribution into discussion which had been put into motion with such a simple act of clear instructions rather than teacher's opaque expectations. Comparing this episode with traditional learning, when we foresee learners' engagement in the discussion, we do not expect things to happen but rather create and nurture a supportive atmosphere in the classroom, administer the assignments in a particular way and provide specific instructions.

Nevertheless, the participation of the learners in the discussion, submission of the assignments or meeting the deadlines could not be considered as their engagement in the course. The question about identifying the factors that could be regarded as indicators of learners' engagement bewildered me. It was not possible to draw on the same conventional patterns used in traditional teaching, such as observation or learners' body language. Like in face-to-face learning I could not directly but informally ask the learners about the level of difficulty or the amount of time they had spent on the assignment, see the way they were reading the material, their perceptions or any other questions. Such brief and regular methods have always supported me in face-to-face teaching, maintaining a satisfying level of communication with the students and providing immediate valuable feedback to design further activities.

Uncertainty of the new

The idea of creating new guides to supervise the process of understanding and evaluating learning materials by the learners came much later in the course. At the end of the explored historical periods, I decided to offer learners a short questionnaire aimed to get information about their assessment of difficulty of the materials or any encountered problems related to the materials. It was a short questionnaire, it took learners only 1-3 minutes to answer it. If I had set

up an online questionnaire earlier in the course, it would have provided me with timely information, opportunity for more experimentation and addressed some concerns about the materials.

Based on my teaching practice of 10th and 11th forms learners of my school, their English language level can be measured from B1 to C1 levels (CEFR). Such a variation was an important factor to consider in selecting or creating learning materials. One of the possible solutions was scheduling several materials to listen/ watch and read during a week's time. GC is a beneficial tool we can rely on in the sense that it is possible to give individualized assignments to learners, depending on different learning objectives, language level or learners' interests. Initially, I thought about differentiating the materials between the learners of the 10th and 11th forms. However, after some consideration I found this division inappropriate. Firstly, it did not define the learners level of language, secondly, more importantly, learners motivation and interests were not limited by the number of the form.

The transition to online teaching created new habits and routines. I scheduled all the assignments and materials for the week, so that they were available for the learners on Mondays at 9:00 am. Accordingly, the students had the whole week for self-directed learning. It was different from my traditional British History classes, when the learners got the assignments on the day of the class in case it was not connected with a long-term project. Although I was mindful of the fact that most of the students submitted their assignments on Sundays, I considered it necessary to have that fixed 9:00 am Monday time. When the students worked on the assignments for two weeks, I also posted my Monday note for them to encourage, wish a good day or give any details, if necessary. Naturally late Sunday afternoon or evening was occupied with commenting on learners' assignments or designing new materials. Leibold and Schwarz (2015) considered that the notion of prompt feedback stretches up to 72 hours in online learning. The students from my course generally replied to the emails or comments within the first hours. Presumably they might have expected the same tendency from me.

Uncertainty of delivering online feedback

As an online learner I have always been grateful for online feedback. As a teacher intuitively anew I felt it was important to provide weekly online feedback to learners' assignments. The aim of the feedback was to note the learner's contribution, to signify that the comments were not invisible, they had been noticed and read. Feedback was also a mode of interaction with the learners, therefore, simple rules of keeping a polite and positive tone were appreciative. I noticed that the pattern of my online feedback approach was similar to feedback in a traditional learning environment. After the learner's email, I addressed the learner by name, thanked them for the comment(s) and then gave any further details. In case one or two students failed to meet the requirements of the assignments, for the purpose of giving them clearer guidelines or open-ended questions, I sent emails. In traditional learning I thoroughly approve of the idea of discussing common questions or misinterpretations in the classroom, whereas any individual facets should be viewed differently.

The form of my feedback was identical to the form of the learners assignment. When the students had a written task, I also gave them written feedback. If I asked learners to record their assignments, for example, by using a voice recorder on a smartphone, my feedback was likewise delivered. Initially, it was not my intention to operate with the same medium and to record my feedback on the voice recorder. First time when the students got such an assignment, only part of them met the deadline and submitted it. A few students sent me emails inquiring about another mode of completing the assignment, one or two students mentioned the absence of the voice recorder app on their smartphones, the fact that they could not figure out how to attach the recording and thus submit the assignment or ignored it. Fortunately, by reason of a small number of the students in the course, I could react and assist all students, either by giving support, extending the deadline or suggesting my or their peers help.

I did not anticipate this situation and was uncertain about the decision of accepting learners' proposal about submitting the assignment in the traditional written form. However, I appreciated learners' alternative suggestion and accepted it, allowing more flexibility and flowing prospects into the course. Supporting the learners who had recorded their assignments, I decided to deliver my feedback with the help of the voice recording app. Such available cues as emotions, tone and

natural pauses embellish both voice recorded assignment and feedback. Listening to learners' recorded assignments, I took notes of their ideas I could comment on in the feedback, personalizing it and applying the same strategy by, firstly, addressing the learners by their names, secondly, acknowledging the learners contribution and, finally, narrating.

Illuminating the experience

Students' feedback that I got at the end of the course was a token of their support and encouragement. Making allowance for the fact that not everything was flowing smoothly, the students appreciated the choice of the LMS and the whole online learning experience. A few students accepted my proposal to consider being involved in creating the content or assisting in the course next academic year. Ertmer and Ottenbreit-Leftwich (2010) noticed that observing learners' interest by bringing about change while integrating technology is one of the sources of support for teachers.

Ruminating about my experience and contemplating teaching this course online next academic year to a new group of learners, there are a few adjustments I would like to make. I think meeting with students for the first lesson is one of the pivotal moments to consider. Meeting face-to-face enables me not to associate students with weird images from their profiles. Conversation aiming to identify students interests, needs and setting personal learning goals also helps to be in tune with learners about common values shared in the course.

As soon as students have some navigation and learning practice in GC, it is a good idea to have an agreement about the time and the medium the feedback will be provided. The point is not to predetermine every element of the course, molding it in a rigid form. The idea is to organize routines and schedule which in turn benefits to achieve priorities. The idea of routines in traditional teaching was discussed by the researches. Floden & Buchmann (1993) added that overlooking the individual characteristics of learners and / or advanced approaches and techniques, teachers may react to uncertainty by continuing to keep routines. Alternatively, creating classroom routines both for students and teachers is one of the routes to softening uncertainty. Among the supportive factors of routines Floden and Clark (1988) listed the

convenience they bring by providing time to handle other matters in the classroom. All these benefits of routines are moderately applicable in online education.

The variety of instructional methods provides an opportunity to convey learning concepts in the most productive way. The learning style is not contingent on students, but on the learning materials. Hopefully I will improve my skills of making videos for the course designed to give visual instructions, adding clarity to the assignments, revising the materials, making transitions to new topics and covering some features of the periods of British history. Although this new modality is not an unconditional guarantee of efficiency.

One concern about the findings of the research was the number of the students in the online course. Having a group of 13 students, which was a lucky coincidence, allowed me to be efficient in commenting, delivering feedback, collaborating in the creation of the materials or solving issues connected with the prevention of the dropping out of the students before completing the course. Imagining the enrollment of a larger number of students might be critical for launching an online course for the first time and embracing uncertainty.

My learners did not come from different ethnic, social or racial groups. Having no experience of formal teaching in a diverse environment, I would have to learn to embrace both the diversity and uncertainty in this case. The diversity I was handling was the one I have encountered in traditional classroom. It was connected with students' different learning backgrounds, individual attitudes and levels of motivation they might have brought to the course.

Conclusion: Taking stock

Delivering an online course for the first time may happen to be an overwhelming experience. The idea about the significance of putting trust in teachers all along this journey was highlighted in the Introduction part (Ertmer and Ottenbreit-Leftwich, 2010; Comas-Quinn, 2016). This support, whatever form it might take, is a substantial requirement and should not be overlooked by the administration of any school.

Uncertainty has always been a part of my teaching. I may not have clearly identified it as uncertainty or if outlined at all then as some permanent element of teaching. It can be assumed

that together with my ‘teaching philosophy’ uncertainty transferred to online teaching experience. Two types of uncertainty identified by Floden and Clark (1988) were present in online teaching, namely uncertainty of the content or learning materials and uncertainty of enhancing students’ learning. Although the researchers in their study related those uncertainties to traditional classrooms, they were present for me in the online environment.

Alternatively, if there were uncertainties that emerge in a traditional context, there were also uncertainties which were present in the use of educational technology, particularly uncertainty connected with the beginning of the online course, communication, dealing with the new guides, habits and routines and providing online feedback. All of them needed to be resolved with new approaches, knowledge skills and experience. These uncertainties might be specific to technology use or specific to a teacher having little or no experience of online teaching.

One uncertainty connected with the creation and the selection of the materials for the course overlapped. It came up in a traditional context during the previous years of delivering the course and it emerged online. I did not find in the studied literature this idea that one of the elements of uncertainty might have an intersection point as its feature. I think this is an important finding for me in the insight of the nature of the uncertainties. Uncertainty is not something perpetual, it does not have a rigid form. It is not like a boulder, a massive stone that can be found in Estonia. It is made of some fluid substance which flows smoothly from one category to another, from traditional to online context.

I benefited from my practice of teaching in a traditional classroom the significance of establishing communication patterns with students, routines, feedback strategies, trusting one’s intuitive decisions, but approaching uncertainty in a different environment required new decisions, not predetermined approaches and learning new skills. Writing about professional certainty, Munthe (2001) assumed that it is “a perception of one’s own ability to make appropriate decisions in uncertain situations or to be able to deal with the inherent uncertainties of teaching” (p. 358).

Reflection turned my experience into a confusing story early in the game (Bolton, 2010; Attard. 2008). At some point I felt uncertain about elements of teaching and learning that have

been certain for me so far, for example, the concept of learning itself. Furthermore, I had doubts about my capacity to have an honest and thorough reflection.

Reflection increases teacher's awareness about both teaching and learning processes. Stepping back from the hustle of the teacher's job, I took a critical look at my teaching experience, framed my uncertainties, discriminating about two categories of uncertainties - emerging from traditional context and related to online teaching. Reflection, serving as a guide, provided me with a possibility to identify uncertainties. This highlights how important reflection is in teaching practice (Helsing, 2007). It is a necessary link in the analysing the sources of the uncertainties. Floden and Clark (1988) emphasized the important relevance of the understanding of the sources of uncertainty with the future actions to take.

One common component of the uncertainties I faced was their novelty either in the form of new guides, habits and routines or in the form of a new teaching environment. Meeting with this novelty I did not have blueprints of uncertainty resolving. Therefore, it was a new professional learning experience which presumed understanding of my competences and creation of concepts and patterns. It is notable that both the experience and the knowledge were authentic. Lange and Burroughs-Lange (1994) considered that active response to challenging situations follows professional development. By active response the researchers implied an open-minded attitude, understanding the essence of both incentive and demanding experience and the aptness of the tools used for making a decision. In the light of this consideration, it is possible to conclude that when teachers actively respond to uncertainty by resolving it, they take a step to their own development.

One concern about the research was that it was limited to the experience of one teacher during one academic year with one group of learners. Despite the fact that the group of learners described in the research was a new one for me, it was not particularly diverse, which would have poured more ingredients of uncertainty into this experience, even reaching the limit beyond my capacity to absorb such a diversity online. This experience might continue next year with a new group of learners, as a possible result bringing both certainty and uncertainty.

Another limitation involves the issue of human's memory and the lack of experience of taking diary notes for research. Mindful of the characteristic of the memory to remember only certain

events or details, I used my diary notes and I wished I had been more accurate in keeping the diary. The epigraph by Sylvia Plath elaborates this idea. The concept of keeping a diary by a novel researcher might be different from the image of a qualified researcher, who is aware of the precision and consistency of taking diary notes.

The purpose of the research was to describe teacher's experience of rejuvenating a traditional face-to-face course in upper-secondary school by launching it online. My experience confirms that the feeling of uncertainty is an indispensable attribute of teaching practice. Every teacher's experience with uncertainty, concept and response to it will have a high level of granularity. Resolving uncertainty sets in motion the flowing of new opportunities, views, practices and learning new skills.

Within one academic year of teaching an online course, I faced uncertainties which later categorized into those emerging in a traditional or face-to-face environment and those which arise in the educational technology context. The uncertainties may overlap, being present in both categories. This important observation suggested that the nature of uncertainty is flexible. Resolving uncertainties through the medium of active responses to them, teachers continue to develop professionally. Reflection, framing and documenting uncertainties is one of the strands of this process.

The results could lead to further research on the concept of uncertainty in teaching. Future studies could fruitfully explore this issue further by using a different research method, namely a narrative inquiry. Listening to teachers' stories which emerge from their personal experience will contribute with more clarity and richer insight into the topic of uncertainty. The method of narrative inquiry will be beneficial for both an inquirer and a storyteller. The latter might get a deeper understanding of one's relationship with uncertainty in general and particularly, uncertainty of teaching.

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